

Claims

- 1 1. A vertical door locking system comprising:
2 a deadbolt:
3 a striker including:
4 an upwardly open strike opening for vertically receiving the deadbolt, and
5 an electrically operated catch mechanism for engaging and releasing the
6 deadbolt from the strike opening;
7 the deadbolt and striker being adapted for mounting, one to a door that opens
8 and closes vertically to provide access to a secure area and the other to an
9 adjacent fixed mounting point, the door lock and striker cooperating to lock
10 the door and prevent it from being opened vertically when the deadbolt is
11 engaged by the striker catch mechanism; and
12 an electric lock controller adapted for mounting outside the secure area and
13 connected to the striker to electrically operate the catch mechanism in
14 response to receiving a secure access key and release the deadbolt from the
15 strike opening thereby providing access to the secure area.
- 1 2. The vertical door locking system according to claim 1 wherein the electric
2 lock controller further includes a status indicator to indicate the striker catch
3 mechanism has released the deadbolt to permit access to the secure area.
- 1 3. The vertical door locking system according to claim 1 wherein the striker
2 further includes a switch providing a signal to indicate the striker catch mechanism
3 has released the deadbolt to permit access to the secure area.
- 1 4. The vertical door locking system according to claim 1 wherein the electric
2 lock controller further includes a keypad and the secure access key comprises a
3 selected personal identification number, the electric lock controller releasing the
4 deadbolt to permit access to the secure area when the selected personal
5 identification number is entered into the electric lock controller via the keypad.

1 5. The vertical door locking system according to claim 1 wherein the electric
2 lock controller further includes a wireless receiver and the secure access key
3 comprises a selected access code wirelessly transmitted to the electric lock
4 controller, the electric lock controller releasing the deadbolt to permit access to the
5 secure area when the selected access code is received by the wireless receiver.

1 6. The vertical door locking system according to claim 1 wherein the electric
2 lock controller further includes a card reader and the secure access key comprises a
3 selected access code magnetically stored on an access card, the electric lock
4 controller releasing the deadbolt to permit access to the secure area when a user
5 swipes the access card in the card reader and the card reader detects the selected
6 access code stored thereon.

1 7. The vertical door locking system according to claim 1 wherein the electric
2 lock controller may be temporarily disabled to prevent access to the secure area.

1 8. The vertical door locking system according to claim 1 wherein the striker
2 includes an override accessible from within the secure area to release the deadbolt
3 from the strike opening and allow the vertical door to open to exit the secure area.

1 9. The vertical door locking system according to claim 1 wherein the striker
2 includes a mount for mounting the striker to a vertical track for the door and the
3 deadbolt includes a mount for mounting the deadbolt to a panel of the door.

1 10. The vertical door locking system according to claim 1 wherein the electric
2 lock controller is responsive to at least one additional secure access key, the electric
3 lock controller releasing the deadbolt in response to each of the secure access keys.

- 1 11. The vertical door locking system according to claim 1 wherein the electric
2 lock controller includes a storage memory for storing transaction data related to
3 accessing the secure area.
- 1 12. The vertical door locking system according to claim 11 wherein the
2 transaction data includes a date and time the electric lock controller releases the
3 deadbolt to permit access to the secure area.
- 1 13. The vertical door locking system according to claim 11 wherein the
2 transaction data includes a date and time of access and an identification
3 corresponding to the secure access key.
- 1 14. The vertical door locking system according to claim 1 wherein the catch
2 mechanism automatically engages the deadbolt when the door is vertically closed.
- 1 15. The vertical door locking system according to claim 1 wherein the catch
2 mechanism pivots between an engaged position and a released position.
- 1 16. The vertical door locking system according to claim 15 wherein the catch
2 mechanism includes a locking arm, the locking arm pivoting between a locked
3 position to lock the catch mechanism in the engaged position and an unlocked
4 position where the catch mechanism may move to the released position, the striker
5 further including a solenoid connected to the locking arm for moving the locking
6 arm between the locked and unlocked positions.
- 1 17. The vertical door locking system according to claim 16 further including a
2 manual override connected to the locking arm and accessible from outside the
3 striker, the manual override allowing a user to pivot the locking arm to the
4 unlocked position and disengage the deadbolt from the striker to open the vertical
5 door and exit the secure area.

1 18. The vertical door locking system according to claim 1 wherein the catch
2 mechanism includes at least one roller contacting the deadbolt when the deadbolt
3 is engaged by the catch mechanism.

1 19. The vertical door locking system according to claim 1 wherein the striker
2 further includes a switch connected to the lock controller and operated by the catch
3 mechanism to provide a signal to the controller indicating the striker catch
4 mechanism has released the deadbolt to permit access to the secure area, and
5 wherein the lock controller includes a storage memory for storing an indication of
6 the date and time the switch has indicated the striker catch mechanism has released
7 the deadbolt.

1 20. The vertical door locking system according to claim 1 wherein the striker
2 further includes a switch connected to the lock controller and operated by the catch
3 mechanism to provide a signal to the controller indicating the striker catch
4 mechanism has released the deadbolt to permit access to the secure area, and
5 wherein the lock controller includes an illuminated status indicator having a first
6 state to indicate the deadbolt is released and a second state to indicate the deadbolt
7 is engaged by the catch mechanism.

1 21. A vertical door locking system comprising:
2 a door lock including:
3 a deadbolt that moves horizontally between an extended position and a
4 retracted position; and
5 a lock mechanism connected to move the deadbolt between the extended
6 position and the retracted position;
7 a striker including:
8 an upwardly open strike opening for vertically receiving the door lock
9 deadbolt, and

10 an electrically operated catch mechanism for engaging and releasing the
11 deadbolt from the strike opening;
12 the door lock and striker being adapted for mounting, one to a door that opens
13 and closes vertically to provide access to a secure area and the other to an
14 adjacent fixed mounting point, the door lock and striker cooperating to lock
15 the door and prevent it from being opened vertically when the deadbolt is
16 extended and engaged by the striker catch mechanism; and
17 an electric lock controller adapted for mounting outside the secure area and
18 connected to the striker to electrically operate the catch mechanism in
19 response to receiving a secure access key and release the deadbolt from the
20 strike opening thereby providing access to the secure area, the door lock
21 providing an alternative access to the secure area by horizontally retracting
22 the deadbolt to disengage the deadbolt from the striker.

1 22. The vertical door locking system according to claim 21 wherein the electric
2 lock controller further includes a status indicator to indicate the striker catch
3 mechanism has released the deadbolt to permit access to the secure area.

1 23. The vertical door locking system according to claim 21 wherein the striker
2 further includes a switch providing a signal to indicate the striker catch mechanism
3 has released the deadbolt to permit access to the secure area.

1 24. The vertical door locking system according to claim 21 wherein the electric
2 lock controller further includes a keypad and is responsive to a secure access key
3 comprising a selected personal identification number, the electric lock controller
4 releasing the deadbolt to permit access to the secure area when the selected
5 personal identification number is entered into the electric lock controller via
6 keypad.

1 25. The vertical door locking system according to claim 21 wherein the electric
2 lock controller further includes a wireless receiver and is responsive to a secure
3 access key comprising a selected access code wirelessly transmitted to the electric
4 lock controller, the electric lock controller releasing the deadbolt to permit access
5 to the secure area when the selected access code is received by the wireless
6 receiver.

1 26. The vertical door locking system according to claim 21 wherein the electric
2 lock controller further includes a card reader and is responsive to a secure access
3 key comprising a selected access code magnetically stored on an access card, the
4 electric lock controller releasing the deadbolt to permit access to the secure area
5 when a user swipes the access card in the card reader and the card reader detects
6 the selected access code stored thereon.

1 27. The vertical door locking system according to claim 21 wherein the electric
2 lock controller may be temporarily disabled to prevent access to the secure area.

1 28. The vertical door locking system according to claim 21 wherein the striker
2 includes an override accessible from within the secure area to release the deadbolt
3 from the strike opening and allow the vertical door to open to exit the secure area.

1 29. The vertical door locking system according to claim 21 wherein the striker
2 includes a mount for mounting the striker to a vertical track for the door and the
3 deadbolt includes a mount for mounting the deadbolt to a panel of the door.

1 30. The vertical door locking system according to claim 21 wherein the lock
2 mechanism of the door lock includes a lock cylinder mechanically operated by a
3 key.

1 31. The vertical door locking system according to claim 21 wherein the electric
2 lock controller includes a storage memory for storing transaction data related to
3 accessing the secure area.

1 32. The vertical door locking system according to claim 31 wherein the
2 transaction data includes a date and time the electric lock controller releases the
3 deadbolt to permit access to the secure area.

1 33. The vertical door locking system according to claim 31 wherein the
2 transaction data includes a date and time of access and an identification
3 corresponding to the secure access key.

1 34. The vertical door locking system according to claim 21 wherein the catch
2 mechanism automatically engages the deadbolt when the door is vertically closed.

1 35. The vertical door locking system according to claim 21 wherein the catch
2 mechanism pivots between an engaged position and a released position.

1 36. The vertical door locking system according to claim 35 wherein the catch
2 mechanism includes a locking arm, the locking arm pivoting between a locked
3 position to lock the catch mechanism in the engaged position and an unlocked
4 position where the catch mechanism may move to the released position, the striker
5 further including a solenoid connected to the locking arm for moving the locking
6 arm between the locked and unlocked positions.

1 37. The vertical door locking system according to claim 36 further including a
2 manual override connected to the locking arm and accessible from outside the
3 striker, the manual override allowing a user to pivot the locking arm to the
4 unlocked position and disengage the deadbolt from the striker to open the vertical
5 door and exit the secure area.

1 38. The vertical door locking system according to claim 21 wherein the catch
2 mechanism includes at least one roller contacting the deadbolt when the deadbolt
3 is engaged by the catch mechanism.

1 39. The vertical door locking system according to claim 21 wherein the striker
2 further includes a switch connected to the lock controller and operated by the catch
3 mechanism to provide a signal to the controller indicating the striker catch
4 mechanism has released the deadbolt to permit access to the secure area, and
5 wherein the lock controller includes a storage memory for storing an indication of
6 the date and time the switch has indicated the striker catch mechanism has released
7 the deadbolt.

1 40. The vertical door locking system according to claim 21 wherein the striker
2 further includes a switch connected to the lock controller and operated by the catch
3 mechanism to provide a signal to the controller indicating the striker catch
4 mechanism has released the deadbolt to permit access to the secure area, and
5 wherein the lock controller includes an illuminated status indicator having a first
6 state to indicate the deadbolt is released and a second state to indicate the deadbolt
7 is engaged by the catch mechanism.

1 41. The vertical door locking system according to claim 21 further including a
2 remotely located control system connected to the electric lock controller and
3 operable to remotely disable access to the secure area via the electric lock
4 controller.

1 42. The vertical door locking system according to claim 41 wherein the remotely
2 located control system is connected to control a plurality of additional electric lock
3 controllers corresponding to a plurality of additional secure areas.

1 43. The vertical door locking system according to claim 41 wherein the remotely
2 located control system is connected to monitor a plurality of additional electric lock
3 controllers corresponding to a plurality of additional secure areas, the remotely
4 located control system recording transaction data received from the plurality of
5 additional electric lock controllers.

1 44. The vertical door locking system according to claim 41 wherein the remotely
2 located control system is connected to the electric lock controller via a wireless
3 connection.

1 45. The vertical door locking system according to claim 41 further including a
2 central office control system connected to the remotely located control system via a
3 network and also operable to remotely control access to the secure area via the
4 electric lock controller.

1 46. The vertical door locking system according to claim 45 wherein the network
2 is a packet switching network.

1 47. The vertical door locking system according to claim 45 wherein the central
2 office control system is connected to at least one additional remotely located
3 control system via the network.

1 48. A vertical door locking system comprising:
2 a door lock including:
3 a deadbolt that moves horizontally between an extended position and a
4 retracted position; and
5 a lock mechanism connected to move the deadbolt between the extended
6 position and the retracted position;
7 a striker including:

8 an upwardly open strike opening for vertically receiving the door lock
9 deadbolt, and
10 an electrically operated catch mechanism for engaging and releasing the
11 deadbolt from the strike opening;
12 the door lock and striker being adapted for mounting, one to a door that opens
13 and closes vertically to provide access to a secure area and the other to an
14 adjacent fixed mounting point, the door lock and striker cooperating to lock
15 the door and prevent it from being opened vertically when the deadbolt is
16 extended and engaged by the striker catch mechanism;
17 an electric lock controller responsive to a secure access key and adapted for
18 mounting outside the secure area and proximate the door, the electric lock
19 controller being connected to the striker to electrically operate the catch
20 mechanism and release the deadbolt from the strike opening thereby
21 providing access to the secure area by a first method when the secure access
22 key is provided to the lock controller, the door lock providing a second
23 access method to the secure area by horizontally retracting the deadbolt to
24 disengage the deadbolt from the striker; and
25 a remotely located control system connected to the electric lock controller and
26 operable to remotely disable access to the secure area via the electric lock
27 controller.

- 1 49. A vertical door locking system comprising:
2 a door lock including:
3 a deadbolt that moves horizontally between an extended position and a
4 retracted position; and
5 a lock mechanism connected to move the deadbolt between the extended
6 position and the retracted position;
7 a striker including:
8 an upwardly open strike opening for vertically receiving the door lock
9 deadbolt, and

10 an electrically operated catch mechanism for engaging and releasing the
11 deadbolt from the strike opening;
12 the door lock and striker being adapted for mounting, one to a door that opens
13 and closes vertically to provide access to a secure area and the other to an
14 adjacent fixed mounting point, the door lock and striker cooperating to lock
15 the door and prevent it from being opened vertically when the deadbolt is
16 extended and engaged by the striker catch mechanism;
17 an electric lock controller responsive to a secure access key and adapted for
18 mounting outside the secure area and proximate the door, the electric lock
19 controller being connected to the striker to electrically operate the catch
20 mechanism and release the deadbolt from the strike opening thereby
21 providing access to the secure area by a first method when the secure access
22 key is provided to the lock controller, the door lock providing a second
23 access method to the secure area by horizontally retracting the deadbolt to
24 disengage the deadbolt from the striker;
25 a remotely located control system connected to the electric lock controller and
26 operable to remotely control access to the secure area via the electric lock
27 controller; and
28 a central office control system connected to the remotely located control system
29 via a network and also operable to remotely control access to the secure
30 area via the electric lock controller.